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Reflections on Poverty and Prospects for Growth in the Mozambican Rural Sector *

By

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BACKGROUND: Since the end of the civil war in 1992, Mozambique has experienced rapid economic growth, at an average rate of 7% per year until 1996, and an exceptional 12% in 1997. This is good news for a population that for about 20 years has suffered the effects of a civil war, economic stagnation and levels of absolute poverty among the highest in the world.

The country continues to face tremendous challenges in its struggle to overcome this legacy. First, to achieve its economic targets and move out of the ranks of the very poorest countries in the world, Mozambique will have to achieve annual growth rates of 7-10% over many years. What are the strategies that can help achieve such sustained levels of growth?

Second, defining such strategies requires solid information about the about the structure of poverty and of the economy in general, especially in the rural sector where more than 80% of the population live.

OBJECTIVES AND METHODS: This paper uses information from two rural household databases to help inform the issue of poverty and growth prospects in the rural sector in Mozambique. Specifically, it focuses on 1) the concentration of two specific types of household assets in the rural sector: land and cashew trees, 2) the impact of this concentration on household income and calorie intake, and 3) the implications of the findings for possible engines of growth in the rural sector. The paper is not intended to exhaust the issue of rural poverty and growth prospects, but to add some important contributions to on-going debates about growth strategies.

The databases used are the MAP/MSU Food Security Project Nampula/Cabo Delgado household survey (NCD) and the Ministry of Agriculture and Fisheries National Agricultural Survey of 1996 (TIA96). The NCD database is a panel generated through a multiple visit household survey in three districts of the cotton belt of Nampula province in northern Mozambique. It includes a complete set of information including all household income sources, expenditures and consumption.[1]

The TIA96 database includes data from a single visit made to households in 60 districts across all Provinces of Mozambique. It has information on household income sources, but no data on expenditures and consumption.

FINDINGS: Results of empirical analysis of income patterns and related household characteristics are presented in Tables 1-3. Table 1 presents results for Monapo and Meconta districts of Nampula in the north of the country. Table 2 reports on the district of Montepuez in Cabo Delgado Province, also in the northern part of the country. Table 3 shows results for all the central-northern region (provinces of Nampula, Zambezia, Sofala and Manica). Data for this last Table are from TIA96.

Results in each table are broken down by terciles of net household net income *per capita*. Each tercile contains 33% of the surveyed households (1/3 of the sample); tercile 1 has the lowest income per capita, tercile 2 is the median income group, and tercile 3 has the highest income levels. The tables also show in each case the average figures among all households. The upper part of each table presents household income shares, i.e., the percentage of income from different sources (food production retained, food crops sold, cash crops sold, etc) and total income in US$. Then, just below that, there are

[1] The consumption data were collected using the 24-hour recall method. For more details, see MAP/MSU Food Security Project Working Paper # 33, downloadable at: http://www.aec.msu.edu/agecon/fs2/mozambique/index.htm

four sections: demographics, land tenure, cashew tree ownership and calorie intake.

With this information we analyze the relationships between household demographic characteristics and access to productive capital, and their levels of income and consumption. What do these data say about poverty in rural Mozambique?

There is considerable consistency in the results across the two databases. Income levels are generally low, not exceeding $100 per capita on average, even in the higher income tercile. Also, incomes per capita are highly variable. Across the three tables, mean incomes in the highest tercile are three to five times higher than incomes in the lowest tercile.

Income sources are very similar in the different areas. On-farm income shares are between 82% and 88% across the three areas, with the off-farm income share varying between 12% and 18%. This result is consistent with a 1991 MAP/MSU/FSP Survey in Nampula Province, which found that off-farm income averaged 15% across surveyed households in Monapo, Ribaue and Angoche Districts. Income from cash crop sales is significantly higher in Monapo/Meconta , 24% on average, than in Montepuez and central/northern areas, where this income share averages 8%. This difference in income shares between the two areas is related to the higher proportion of households that grow cotton in Monapo/Meconta.

Results indicate that the relationship between household per capita income and household characteristics have some of the following patterns:

1. In each area, households with higher incomes have a high share of income from cash crop sales, mainly cotton and cashew. This means that poorer households take less advantage of cash crops than the relatively richer households;

2. In all areas, larger households have lower per capita income levels. This result is consistent with other countries where similar studies have been conducted;

3. In general, female-headed households are concentrated in the lower per capita income tercile. In Montepuez, the proportion of female-headed households is insignificant;

4. There is a strong relationship between land area per household and the levels of household income. On average, the top tercile households have land areas that are 2 to 3 times larger than their lowest tercile counterparts;

5. In the central/northern region (Table 3) and in the Monapo/Meconta sub-region (Table 1), households with higher incomes are more likely to have cashew trees; moving from the lower to the higher income tercile, the proportion of households that have cashew trees increases. Also, the actual number of cashew trees is always higher in the middle and higher income terciles when compared to the lowest income tercile. In Montepuez, where cashew is relatively less important, these patterns are not clear;

6. Finally, for areas with data for household consumption (Monapo/Meconta and Montepuez), households with higher income also achieve higher levels of calorie intake. There is one exception in Monapo/Meconta, in the hungry season, when households in all terciles have seemingly similar consumption levels below the standard daily requirements. Over the entire year, the highest income per capita tercile households of Monapo/Meconta achieve consumption levels that are 14% higher than those achieved by the lowest tercile households, In Montepuez this figure is about 23%;

POLICY IMPLICATIONS FOR POVERTY REDUCTION AND GROWTH PROSPECTS IN THE RURAL SECTOR:

These results suggest a few generalizations that can be made regarding the rural sector in Mozambique. First, there is a strong concentration of land in the smallholder sector in the survey areas. Second, concentration of cashew tree ownership is positively associated with the concentration of land in the smallhollder sector[2] - those who have more land also have more cashew trees. Third, this concentration of land and cashew tree ownership is directly associated with levels of household income and consumption - households with less land also have fewer cashew trees and lower levels of income and calorie consumption.

[2] For more details on land access mechanisms and land distribution in northern Mozambique, see Marrule, H. (1998) "Land-Poor in a 'Land-Abundant Setting': Unraveling a Paradox in Mozambique", MSc. Thesis, Michigan State University. ***

Table 1. Household Income Shares, Demographic Characteristics, Land and Cashew Tree Ownership, and Calorie Intake, by Income per capita Tercile: Monapo/Meconta

Income Source	Net Income per capita Tercile			Monapo/ Meconta
	1	2	3	
	----- % of Household Income -----			
On-Farm				
Staple Food Retained	54	51	44	50
Fruits and Vegetables Retained	<1	<1	1	1
Livestock Retained/Sold	7	6	4	6
Staple Food Sales	4	3	3	3
Fruits and Vegetables Sales	<1	<1	1	<1
Cash Crop Sales	20	21	32	24
Total On-Farm	**86**	**82**	**85**	**85**
Off-Farm				
Net Labor Sales	8	12	6	9
Net Microenterprise Income	6	6	9	7
Total Off-Farm	**14**	**18**	**15**	**15**
	100	**100**	**100**	**100**
	----- Mean in $ -----			
Total Household Net Income	**151**	**270**	**412**	**276**
Total Net Income per capita	**27**	**52**	**95**	**58**
Demographics				
Age of the Household Head (years)	**37**	**43**	**42**	**40**
Female Headed Households (%)	**7**	**1**	**<1**	**3**
Household Size (# of members)	**5.6**	**5.1**	**4.3**	**5**
Land Tenure				
Total Area per Household (ha/HH)	**3.1**	**5**	**4.2**	**4.1**
Total Area per capita (ha *per capita*)	**0.6**	**1**	**1.11**	**0.9**
Cultivated Area per Household (ha/HH)	**2.3**	**3.3**	**3.7**	**3.1**
Cashew Tree Ownership				
Households w/ Cashew Trees (%)	**43**	**63**	**71**	**60**
# of Cashew Trees from HH w/	**45**	**75**	**70**	**65**
Calorie Intake(1)				
Available Kcal/ae/HH - May 1995	**2734**	**3067**	**3479**	**3093**
Available Kcal/ae/HH - May 1995	**3112**	**3227**	**3455**	**3262**
Available Kcal/ae/HH - May 1995	**2340**	**2162**	**2434**	**2311**

Source: 1996 MAP Smallholder Survey and 1996 MAP/MSU MSE Survey data
(1) Compare average calorie intake with the minimum recommended per adult equivalent with moderate activity 2,987. Averages below this value are underlined.

Table 2. Household Income Shares, Demographic Characteristics, Land and Cashew Tree Ownership, and Calorie Intake, by Income per capita Tercile: Montepuez

Income Source	Net Income per capita Tercile			Montepuez
	1	2	3	
	----- % of Household Income -----			
On-Farm				
Staple Food Retained	68	62	62	64
Fruits and Vegetables Retained	<1	<1	<1	<1
Livestock Retained/Sold	2	3	2	3
Staple Food Sales	2	10	6	6
Fruits and Vegetables Sales	1	<1	1	1
Cash Crop Sales	3	7	14	8
Total On-Farm	**78**	**83**	**86**	**82**
Off-Farm				
Net Labor Sales	12	3	6	7
Net Microenterprise Income	10	14	8	11
Total Off-Farm	**22**	**17**	**14**	**18**
	100	**100**	**100**	**100**
	----- Mean in $ -----			
Total Household Net Income	**105**	**172**	**366**	**214**
Total Net Income per capita	**19**	**33**	**88**	**46**
Demographics				
Age of the Household Head (years)	**37**	**39**	**42**	**40**
Female Headed Households (%)	**0**	**1**	**0**	**<1**
Household Size (# of members)	**5.5**	**5.2**	**4.5**	**5**
Land Tenure				
Total Area per Household (ha/HH)	**2.7**	**3.2**	**4.5**	**3.5**
Total Area per capita (ha *per capita*)	**0.51**	**0.63**	**1.14**	**0.76**
Cultivated Area per Household (ha/HH)	**1.8**	**2.5**	**3.5**	**2.6**
Cashew Tree Ownership				
Households w/ Cashew Trees (%)	**44**	**53**	**50**	**49**
# of Cashew Trees from HH w/	**10**	**13**	**7**	**10**
Calorie Intake(1)				
Available Kcal/ae/HH - May 1995	**2210**	**2457**	**2998**	**2553**
Available Kcal/ae/HH - May 1995	**2882**	**2650**	**3423**	**2988**
Available Kcal/ae/HH - May 1995	**1797**	**1827**	**2048**	**1890**

Source: 1996 MAP Smallholder Survey and 1996 MAP/MSU MSE Survey data
(1) Compare average calorie intake with the minimum recommended per adult equivalent with moderate activity 2,987. Averages below this value are underlined.

Table 3. Household Income Shares, Demographic Characteristics and Land and Cashew Tree Ownership, by Income per capita Tercile: Central and Northern Mozambique

Income Source	Net Income per capita Tercile			Central and Northern Mozambique
	1	2	3	
	----- % of Household Income -----			
On-Farm				
Staple Food Retained	69	51	39	53
Fruits and Vegetables Retained	7	20	21	16
Livestock Retained/Sold	5	4	4	4
Staple Food Sales	5	6	4	5
Fruits and Vegetables Sales	1	2	2	2
Cash Crop Sales	6	9	10	8
Total On-Farm	**93**	**92**	**80**	**88**
Off-Farm				
Net Labor Sales	3	0	1	2
Net Microenterprise Income	4	8	19	10
Total Off-Farm	**7**	**8**	**20**	**12**
	100	**100**	**100**	**100**
	----- Mean in $ -----			
Total Household Net Income	**67**	**161**	**376**	**201**
Total Net Income per capita	**12**	**30**	**91**	**44**
Demographics				
Age of the Household Head (years)	**42**	**43**	**44**	**43**
Female Headed Households (%)	**17**	**11**	**12**	**13**
Household Size (# of members)	**5.9**	**5.5**	**4.5**	**5.2**
Land Tenure				
Total Area per Household (ha/HH)	**1.65**	**2.41**	**3.12**	**2.41**
Total Area per capita (ha *per capita*)	**0.3**	**0.48**	**0.82**	**0.54**
Cultivated Area per Household (ha/HH)	**1.25**	**1.66**	**2.01**	**1.65**
Cashew Tree Ownership				
Households w/ Cashew Trees (%)	**36**	**52**	**55**	**48**
# of Cashew Trees from HH w/	**28**	**39**	**51**	**41**

Source: 1996 MAP Smallholder Survey and 1996 MAP/MSU MSE Survey data

Finally, these results show that the rural sector is heterogeneous, and that there may be useful distinctions to be made between the "less poor" on the one hand, who have more productive assets, earn relatively higher incomes and achieve relatively higher levels of calorie intake, and the "most poor", who are in the opposite position regarding asset ownership and welfare.

Strategic policy implications of these findings are as follows.

Poverty in rural areas is basically associated with low levels of productivity in smallholder subsistence agriculture. There are various causes behind these low productivity levels: weak physical infrastructure, low levels of education, few off-farm income opportunities[3], and very low levels of use of improved inputs and modern technology. To overcome poverty, these constraints will have to be overcome, allowing for increased productivity - once productivity is increased, rural growth will be fueled and increasingly sustained. The design and implementation of strategies aimed at increasing productivity at the household level fall into the scope of the Ministry of Agriculture and Fisheries (MAP) in collaboration with the private sector. What do these results, concerning the structure of rural household income and of the rural economy, mean for rural income growth strategies based on increased use of improved inputs?

On the one hand, it will be very difficult to target the poorest households that have less land, fewer cashew trees and the lowest levels of income and consumption. The risks associated with the use of improved inputs will be more difficult for this group to bear, and the ability of the state to reduce such risks is limited. Income growth and poverty reduction in this group will depend more on their ability to engage in off-farm income earning opportunities such as micro and small enterprises and other forms of employment in the farm and non-farm sectors.

On the other hand, the group of "less poor" households has more land, more cashew trees and already achieves higher levels of income and consumption. Therefore, this group may be less vulnerable and have more ability to bear the risk (and enjoy the benefits) associated with the use of improved inputs. Note that this group (the highest income per capita tercile in each table) is already more market-oriented, with significantly higher shares of their income coming from the sales of cash crops. Therefore, it is suggested that this group is a more appropriate beginning target in the promotion of purchased input use in the smallholder sector.

Finally, it is worth noting that intensification of smallholder agriculture cannot be successful without a well-designed trade policy, oriented to regional and international trade. The positive impact of cash crops, especially cotton and cashew, on rural household incomes testifies to the importance of regional and international trade.

The experience of the past two years of exports of maize from central and northern Mozambique to Malawi shows the impact that trade in food crops can have on prices received by producers in those areas (much higher than those received before in a closed economy).

This opening of trade in maize has a potentially high impact on household investment decisions with respect to improved inputs. It is very important to keep open these marketing opportunities, and develop other regional and international markets for maize and other crops. This will help create the necessary conditions for a sustained intensification of agriculture in the Mozambican smallholder sector and ultimately benefit from its effects on poverty reduction and economic growth.

[3] For more details on the importance and role of off-farm income activities in the rural economy of central and northern Mozambique, see Benfica, Rui (1998) "An Analysis of the Contribution of Micro and Small Enterprises to Rural Household Income in Central and Northern Mozambique", MSc. Thesis, Michigan State University.***

* This paper is a translation from Portuguese - Flash 14 P, available at: http:www.aec.msu.edu/agecon/fs2/mozambique/index.htm

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*** The publications listed in footnotes 2 and 3 are available at http:www.aec.msu.edu/agecon/fs2/mozambique/index.htm